

## Claims:

1. A process for the direct preparation of mixtures of monoalkyltin trichlorides  $\text{RSnCl}_3$  and dialkyltin dichlorides  $\text{R}_2\text{SnCl}_2$  in one reaction step by partial alkylation of tin tetrachloride using alkylaluminum compounds in the form of their ether donor complexes, wherein an amount of ether greater than that required for stoichiometric formation of the donor complex is used in the reaction.
2. The process as claimed in claim 1, wherein mixtures having monoalkyltin trichloride contents of from 45 mol% to above 99 mol% are prepared in one step in a direct process.
3. The process as claimed in claim 1, wherein the molar excess of ether is at least 10 mol% over the stoichiometric ratio of trialkylaluminum compound and donor ether.
4. The process as claimed in claim 1, wherein the reaction is carried out in a temperature range from 40°C to 70°C.
5. The process as claimed in claim 1, wherein the donor complexing agent used is di-n-butyl ether.
6. A mixture of monoalkyltin trichlorides  $\text{RSnCl}_3$  and dialkyltin dichlorides  $\text{R}_2\text{SnCl}_2$  obtainable by a process as claimed in any of claims 1 to 5 in which the process yield is at least 90 mol%, in particular at least 95 mol%, based on the amount of tin tetrachloride used.

- /7. A mixture of monoalkyltin trichlorides  $\text{RSnCl}_3$  and dialkyltin dichlorides  $\text{R}_2\text{SnCl}_2$  having a monoalkyltin trichloride content of at least 50 mol%, in particular at least 65 mol%.
8. A mixture as claimed in claim 7, wherein the alkyltin chlorides bear alkyl groups  $\text{C}_n\text{H}_{2n+1}$  where  $n = 8$  to 18, in particular  $n = 10$  to 18.
- / 9. A mixture of monoalkyltin trichlorides  $\text{RSnCl}_3$  and dialkyltin dichlorides  $\text{R}_2\text{SnCl}_2$  having a trialkyltin chloride content of up to 5 mol%.
- /10. A mixture of monoalkyltin trichlorides  $\text{RSnCl}_3$  and dialkyltin dichlorides  $\text{R}_2\text{SnCl}_2$  having a monoalkyltin trichloride content of at least 50 mol%, a dialkyltin dichloride content of at least 20 mol% and a trialkyltin chloride content of up to 5 mol%.
- / 11. The use of a mixture of monoalkyltin trichlorides and dialkyltin dichlorides prepared according to the invention for the preparation of mixtures of monoalkyltin tris(mercaptides) and dialkyltin bis(mercaptides).
12. The use of monoalkyltin tris(mercaptides) and dialkyltin bis(mercaptides) as claimed in claim 12 as heat stabilizers for PVC or as polyurethane catalysts.